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10/711,114	08/24/2004	Christopher S. Jochumson	22207-010120	5113

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EXAMINER
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ART UNIT	PAPER NUMBER
2626	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PTO-INBOX@AKACHANLAW.COM

Office Action Summary	Application No.	Applicant(s)	
	10/711,114	JOCHUMSON, CHRISTOPHER S.	
	Examiner	Art Unit	
	Martin Lerner	2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 June 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 to 3, 5 to 6, and 8 to 28* is/are pending in the application.

4a) Of the above claim(s) *11 to 21* is/are withdrawn from consideration.

5)☒ Claim(s) *9 and 10* is/are allowed.

6)☒ Claim(s) *1 to 3, 8, 22 to 24, and 28* is/are rejected.

7)☒ Claim(s) *5 to 6 and 25 to 27* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of Group I, Claims 9 and 10, in the reply filed on 29 June 2007 is acknowledged. Claims 1 to 3, 5 to 6, 8, and 22 to 28 will be examined with the claims of Group I, as claims 1 to 3, 5 to 6, 8, and 22 to 28 link Group I and Group II, as stated in the restriction requirement of 27 June 2007.

Claims 11 to 21 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 29 June 2007.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1 to 3 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1 to 26 of U.S. Patent No. 6,865,536 in view of *Meisel et al.*

Although the conflicting claims are not identical, they are not patentably distinct from each other because the current claims of the application and the prior claims of the patent set forth the same subject matter of two or more clients storing audio speech in one or more buffers and a server comprising the capability to receive packets from each of the at least two clients. The only significant feature omitted by the claims of the parent patent is storing audio speech in buffers in a raw uncompressed audio format, as the claims of the parent patent do not expressly say that buffers store raw uncompressed speech. However, *Meisel et al.* teaches preprocessing for speech recognition, where a general approach is disclosed of a means for buffering raw analog or digitized speech data for analysis by collecting and storing the raw data. Optimal parameters can then be extracted by analysis. (Column 5, Lines 6 to 12) It would have been obvious to one having ordinary skill in the art to modify the claims of the parent patent to include a feature of storing raw uncompressed audio speech in buffers as taught by *Meisel et al.* for a purpose of providing for analysis and collection of speech data for speech recognition to obtain optimal parameters during preprocessing.

A restriction requirement was made in the parent application, Application Serial No. 10/199,395, but the current claims of the application do not maintain the line of patentable distinctiveness. The current claims merely represent claims elected in the parent application, Application Serial No. 10/199,395.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1 to 3 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Barclay et al.* in view of *Meisel et al.*

Concerning independent claim 1, *Barclay et al.* discloses a speech recognition system, comprising:

"two or more clients, each client comprising the capability to receive audio speech from a user, [store the audio speech in one or more buffers in a raw uncompressed audio format], each buffer comprising a portion of the received audio speech, encode a buffer of the received audio speech before all of the audio speech is received, package the encoded buffer to receive audio speech into one or more packets to be transmitted over the internet before all of the audio speech is received, and transmit a packet of encoded audio speech over the internet before all of the audio speech is received" – a connection between the client and the server can be any communication channel including the Internet; a client includes a microphone 10 for accepting audio input ("capability to receive audio speech from a user") (column 4, line 62 to column 5, line 11: Figure 1); quantized feature data is delivered to dispatcher 26 where it may be temporarily buffered (column 5, lines 36 to 64); front-end 12 is a

program for collecting the digitized speech, extracting a set of features, and quantizing those features ("encode a buffer of the received audio speech") (column 5, lines 4 to 11); such buffering does not detract from the real-time aspect since the buffering is to accommodate timing delays and synchronization that may be needed; the front end streams the quantized data to the dispatcher; "stream" is defined to send substantially continuously the data in real-time ("before all of the audio speech is received") (column 5, lines 48 to 55; column 7, lines 13 to 20); a client sends quantized speech data as message packets ("package the encoded buffer of received audio speech into one or more packets") (column 7, lines 48 to 59); the packets can be forwarded by the client dispatcher to the server ("transmit a packet of encoded audio speech") (column 7, lines 48 to 59); implicitly, a client/server architecture includes a plurality of clients ("two or more clients") serviced by a server;

"a server, the server comprising the capability to receive packets of encoded audio speech from at least two clients, decode each of the packets of audio speech and store the resultant raw speech into one or more buffers for the respective client, and evaluate the resultant raw speech received from each of the at least two clients" – server side 4 includes dispatcher 18 that physically receives the quantized features ("receive packets of encoded audio speech") (column 5, lines 21 to 35: Figure 1); server receives quantized speech data as message packets ("to receive packets of encoded audio speech") (column 7, lines 48 to 59); server dispatcher accepts and buffers messages (digitized quantized features) 60 before the recognizer is ready to receive and process the messages ("decode each of the packets of audio speech and store

resultant raw speech into one or more buffers for the respective client") (column 7, lines 26 to 40); speech recognizer/decoder 20 recognizes words from the quantized speech features ("evaluate the resultant raw speech received") (column 5, lines 21 to 35); implicitly, a client/server architecture enables a server to simultaneously service and buffer speech from a plurality of clients ("from each of the at least two clients simultaneously").

Concerning independent claim 1, the only element omitted by *Barclay et al.* is that clients "store audio speech in one or more buffers in a raw uncompressed audio format". *Barclay et al.* discloses that a client buffers digitized speech parameters before it is sent, but omits buffering analog speech as it is received. However, it is well known to buffer speech both upon reception and before transmission to facilitate processing. *Meisel et al.* teaches preprocessing for speech recognition, where a general approach is disclosed of a means for buffering raw analog or digitized speech data for analysis by collecting and storing the raw data. Optimal parameters can then be extracted by analysis. (Column 5, Lines 6 to 12) Thus, *Meisel et al.* suggests storing raw analog speech upon reception. It would have been obvious to one having ordinary skill in the art to include a feature of storing raw uncompressed audio speech in buffers as taught by *Meisel et al.* in a client/server speech processor/recognizer of *Barclay et al.* for a purpose of providing for analysis and collection of speech data for speech recognition to obtain optimal parameters during preprocessing.

Concerning claims 2 and 3, *Barclay et al.* discloses that a transcription or text is determined by the speech recognizer ("a result of the server's evaluation of the resultant raw speech received from the client"), the transcription is returned to the dispatcher, and the dispatcher returns the text to the client ("transmit a response to a client"); alternatively, the application program receives and understands the request from the client and performs the desired function (column 6, lines 5 to 25); a client has a browser 78 for displaying HTML (column 8, lines 36 to 47: Figure 4), which implicitly involves "a display screen".

Concerning claim 22, *Barclay et al.* discloses a client/server speech processor/recognizer, where a client transmits speech to a server, and a server evaluates the speech from the client; additionally, communication of control information between client and server allows a variety of speech applications to be performed over the Internet, including filling in forms for an airline reservation/ticketing application (column 8, line 65 to column 9, line 15); a client may specify what grammar the speech processor should use to recognize the current speech input, and the client program can use keyword-value pairs to determine what action a server application program should perform, *e.g.* to display transcribed speech or to fill in a form displayed to the user (column 8, lines 22 to 36); thus, *Barclay et al.* permits a client to select an objective, *e.g.* transcribing speech or filling in forms for airline reservation/ticketing.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Barclay et al.* in view of *Meisel et al.*, and further in view of *Osborne et al.*

Concerning claim 8, the only element omitted by *Barclay et al.* is "wherein the one or more buffers comprise a linked list of buffers." However, *Osborne et al.* teaches a network interface, where it is stated that linked lists of buffers are typically used for transmitting from a transmit side to a receive side. (Column 3, Lines 59 to 65) In one embodiment, a receive side includes a free buffer ring queue 56 and buffers 64 and 66, where frame data received from a network interface is read from free buffer ring queue 56 to either buffer 64 or buffer 66. (Column 10, Lines 20 to 44: Figure 1B) Buffers are organized as linked lists. (Column 18, Line 58 to Column 19, Line 14: Figure 8) An objective is to ensure low overhead and prevent blocking of transmission of frames for other connections. (Column 3, Lines 10 to 58) It would have been obvious to one having ordinary skill in the art to organize buffers as a linked list as taught by *Osborne et al.* in the browser of *Barclay et al.* for the purpose of ensuring low overhead and preventing blocking of transmission frames from other connections.

Claims 23 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Barclay et al.* in view of *Meisel et al.* as applied to claims 1 and 22 above, and further in view of *Neumeyer et al.*

Concerning claim 23, *Barclay et al.* discloses a client/server speech processor/recognizer, where a client transmits speech to a server, and a server

evaluates the speech from the client for user objectives of displaying transcribed speech or filling in a form for airline reservation/ticketing, but omits a user objective of pronunciation accuracy. However, *Neumeyer et al.* teaches a method and apparatus for automatic grading of pronunciation for language instruction based on speech recognition in a client-server language instruction environment. (Abstract) An objective is to provide for automatic assessment of pronunciation quality capable of grading even arbitrary utterances made up of word sequences for which there is no training data. (Column 2, Lines 15 to 38) It would have been obvious to one having ordinary skill in the art to utilize speech recognition for a user objective of pronunciation accuracy as taught by *Neumeyer et al.* in a client/server speech processor/recognizer of *Barclay et al.* for a purpose of automatically assessing pronunciation quality of arbitrary utterances.

Concerning claim 28, *Neumeyer et al.* provides for further interactions between the client and the server as additional audio prompts ("a second file") are downloaded from the server, provided by a client to a student ("presenting the second file to the user"), and a student responds to questions ("the client receives audio speech from the user") for pronunciation evaluation at a server. (Column 17, Lines 15 to 47: Figure 8)

Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Barclay et al.* in view of *Meisel et al.* as applied to claims 1 and 22 above, and further in view of *August et al.*

Barclay et al. discloses a client/server speech processor/recognizer, where a client transmits speech to a server, and a server evaluates the speech from the client

for user objectives of displaying transcribed speech or filling in a form for airline reservation/ticketing, but omits a user objective of teaching grammar. However, it is known to utilize speech recognition for a variety of instructional and teaching objectives. Specifically, *August et al.* suggests a method for interactive language instruction for a client-server architecture [0050], where a student or teacher can arrange for customized combinations of functions to help a specific student learning issue, including pronunciation and grammar [0094]. At least one lesson involves teaching or reinforcing grammar skills. [0103] An objective is to have available an interactive language instruction program that provides advantageous features where functions may be combined to create rich applications for learning. [0094] It would have been obvious to one having ordinary skill in the art to apply a client/server speech processor/recognizer of *Barclay et al.* to a user objective of teaching grammar as suggested by *August et al.* for a purpose of combining teaching functions to create a rich environment for learning.

Allowable Subject Matter

Claims 9 and 10 are allowed.

Claims 5 to 6 and 25 to 27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

Applicant's arguments filed 04 June 2007 have been fully considered but they are not persuasive.

Firstly, Applicant argues that it is not obvious, and there is no suggestion, to combine *Barclay et al.* and *Meisel et al.*

However, there is an express motivation set forth by *Meisel et al.* The objective is to buffer raw analog speech for analysis during preprocessing so that optimal parameters can be extracted. (Column 5, Lines 6 to 12) Thus, *Meisel et al.* is saying that buffering of raw speech is advantageous to give a processor time to analyze the speech and extract parameters before any further processing for speech recognition.

Generally, Applicant is attacking the rejection by arguing the specifics of each reference individually without addressing the basis of the combination. One cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Applicant is simply pointing out features of *Barclay et al.* and *Meisel et al.*, individually, and arguing that the features cannot be combined because of these differences. However, *Meisel et al.* is merely cited for an overall concept that it is well known to buffer raw speech for preprocessing. Thus, Applicant's arguments are not persuasive.

Secondly, Applicant argues that the combination of *Barclay et al.* and *Meisel et al.* fails to store the speech itself in a raw uncompressed audio format, as claimed.

Applicant says that he retains the original analog data of the speech, requiring large amounts of information to be stored. Presumably, Applicant is referring to the linked list of buffers as storing large of amounts of information in an analog format.

However, independent claim 1 does not distinguish over the references because the speech is not recited as being stored in an analog form, but only as being in a raw, uncompressed audio format. Nor is it entirely clear how analog speech data can be stored in a linked list of buffers if the buffers are units of digital memory. *Meisel et al.* teaches buffering raw speech during processing, and buffering of raw speech is precisely equivalent to storing speech in raw form. Admittedly, *Barclay et al.* does not expressly disclose storing speech in raw form, although it is maintained that any digital signal processor acting on voice data buffers raw speech during processing, implicitly. Independent claim 1 does not say anything about how large a quantity of data must be stored, so as to distinguish over temporary storage of speech during processing.

Thirdly, Applicant argues that *Barclay et al.* discloses extracting and quantizing cepstral features, but that cepstral features are not speech and that quantizing is not encoding. Applicant says that extracting features from speech is not encoding speech, and quantizing features is not encoding speech.

It is respectfully maintained that Applicant is wrong in these contentions, and evinces unfamiliarity with speech processing technology. Cepstral features do represented encoded speech, and quantizing can be a method of encoding. Broadly, encoding can be defined as any process that transforms information from one format to another format. (*Wikipedia*) Generally, coding of information involves converting data

into a format so that it can be processed by a computer or transmitted. Here, cepstral features are a format for representing speech suitable for speech recognition by performing mathematical operations of logarithms and Fourier transforms. Thus, cepstral features represent a transformation of speech information from one format to another format, so it follows that cepstral features are coded speech. Similarly, quantization is a format conversion that is advantageous for transmission of speech data. Thus, it is maintained that Applicant is clearly incorrect in maintaining that cepstrals are not encoded speech, and that quantizing speech features does not involve encoding speech.

Therefore, the rejections of claims 1 to 3 on the ground of nonstatutory obviousness-type double patenting; of claims 1 to 3 and 22 under 35 U.S.C. 103(a) as being unpatentable over *Barclay et al.* in view of *Meisel et al.*; of claim 8 under 35 U.S.C. 103(a) as being unpatentable over *Barclay et al.* in view of *Meisel et al.*, and further in view of *Osborne et al.*; of claims 23 and 28 under 35 U.S.C. 103(a) as being unpatentable over *Barclay et al.* in view of *Meisel et al.*, and further in view of *Neumeyer et al.*; and of claim 24 under 35 U.S.C. 103(a) as being unpatentable over *Barclay et al.* in view of *Meisel et al.*, and further in view of *August et al.*, are proper.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Martin Lerner whose telephone number is (571) 272-7608. The examiner can normally be reached on 8:30 AM to 6:00 PM Monday to Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David R. Hudspeth can be reached on (571) 272-7843. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic

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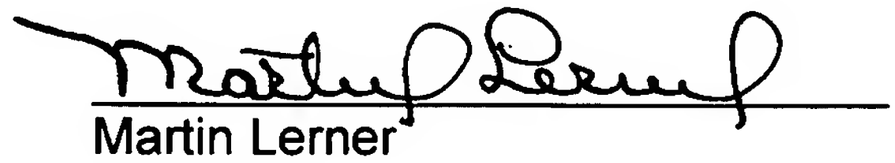

Martin Lerner
Examiner
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